



because it works

Operation manual

AIR COMBI SPRAY GUN

OPTIMA 2100



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This operation manual only applies in conjunction with the machine card that was given to you with the user manual for your equipment. Please check that the type plate data is identical with the information on the machine card. Please notify us immediately if there are discrepancies, if the user manual has been incorrectly compiled or if the type plate is missing.

1 Preface



This operation manual must always be available to operating staff!



The operating authority of the equipment must ensure that a user's handbook is available to the operator in a language which he understands.

Dear customer!

Thank you for your decision to purchase **WIWA**® equipment.

In the user's handbook, you can find all information required for the proper handling of your **WIWA**® spray gun. However, for safe operation, there are further essential details which you should adhere to:

Please read and observe the guidelines valid for your country.

In Germany, the "**Richtlinien für Flüssigkeitsstrahler**" (Guidelines for Fluid Sprayers) published by: **Hauptverband der Gewerblichen Berufsgenossenschaften** (Industrial Employer's Liability Insurance Association) are valid.

Manufacturer's notes and operating guidelines for coating and pumping materials should be observed at all times.

No method of operation should be exercised which impairs the safety of the operating personnel or **WIWA**® product.

We wish you much success and excellent working results when using your **WIWA**® spray gun.

WIWA Wilhelm Wagner GmbH & Co. KG

2 Safety

This spray gun was designed and built in accordance with all safety aspects. It corresponds with the present standards of technical regulations and current rules for accident prevention. It left the factory in perfect condition, insuring a high level of safety.

However, the following dangers exist if operated incorrectly or used inappropriately:

- to life and limb of operator or third persons
- for the machine and other property belonging to owner of machine
- for the efficient working of the machine

All personnel involved in the starting, operation, and maintenance of the spray gun and associated equipment must read the following notes and observe them.

It is a matter of their safety!

2.1 First read, then start



Remember that airless paint spraying equipment works under extreme pressure and that high levels of spraying pressure are created!

- Never hold your finger or hand in front of the gun and never reach into the spray.
- Never point the spray gun towards yourself, other people or other living creatures.
- Always pay close attention to the references and specifications found in the user's handbook!

Before each usage, be especially certain to:

- Check the grounding conditions (for the unit and the object to be sprayed).
- Check the seal of all connecting and mounted parts.
- Observe the maximal allowed pressure of the unit and accessory parts.

Before beginning any work on the equipment, and at any pause during

operation, it is absolutely required to:

- Shut down the spraying equipment in accordance with the instructions in the user's handbook.
- Release the pressure found in the spray gun and hose.
- Secure the spray gun.

Pay attention to safety!

The accident prevention regulation "Handling of Coating Materials" (BGR500, Kap.2.29) and the guidelines covering fluid sprayers (ZH1/406) from the German Employer's Liability Insurance Association are to be observed without fail. To ensure a safe operating environment, the condition of fluid sprayers must be inspected by an expert every 12 months or sooner, if deemed necessary. A written record of the inspection results is to be kept.

Remaining paint and solvent are to be disposed of according to legal regulations. This also applies for environmentally friendly water based lacquer or enamel systems.

In case of injuries, consult a physician or go to the next hospital without delay. If paint/material or solvent has gone into the skin, the physician has to be informed about the type of paint/material or the solvent applied.

Therefore, always ensure that the product specification sheet, with address and telephone number of the manufacturer, is at your disposal!

2.2 Description of symbols

The signs and symbols used in this manual have the following meaning:



NOTE

marks a section of text which is especially relevant to safety. Special attention should be paid to this section and its contents strictly observed.



WARNING

marks a situation which could be dangerous. If not observed, death or very serious injury could result.



Warning concerning electrostatic charging when spraying in metal containers.

Take care to ground the spray gun through contact with the container in order to prevent a major static discharge.



DANGER OF EXPLOSION

marks a situation, where there is danger of explosion. Observation of this information is absolutely essential.



USE BREATHING PROTECTION

For health reasons, it is very important to pay attention to this warning.



WEAR PROTECTIVE GLOVES

To prevent burns, wear protective gloves with lower arm protection. Observation of this information is essential.



HEALTH DANGER

marks materials which are hazardous to your health. Observation of this information is absolutely essential.

2.3 Dangers caused by rebuilds and changes

For safety reasons, it is not allowed to carry out rebuilds or changes without authorization. Protective equipment may not be dismantled, altered or neglected.

If using components which are not produced or delivered by **WIWA®**, warranty coverage is negated as well as liability.

The spray gun may only be operated within the prescribed limits and machine parameters.

2.4 Dangers caused by attachments and spare parts

If you use original attachments and original spare parts from **WIWA®**, the compatibility with our equipment is guaranteed. It is, however, essential that the safety regulations of the attachments and spare parts are observed. You can find these safety regulations in the User's Handbook located with the spare parts lists.

If you use attachments and spare parts from another source, **WIWA®** cannot guarantee the safety of the entire system.

In this case, our guarantee does not cover any damage or injury caused by such attachments and spare parts.

2.5 Dangers caused by emissions

It is possible for solvent vapours to occur, depending on the materials used. Therefore, please ensure the workplace is sufficiently ventilated in order to avoid damage to health and property. Always observe the processing information given by the material manufacturer.




The spray gun itself produces no noise.

Please observe the maximum noise level of the spraying equipment.


2.6 Safety instructions



Observe the following notes:

- The spray gun must meet or exceed the maximum operational pressure of the paint spraying equipment being used.
- Because of the electrostatic charges produced by spraying, the spray gun may only be mounted to conductive hoses. All original **WIWA®** hoses are conductive and matched to **WIWA®** spray equipment.
- It is possible for a static charge to occur due to the high flow speeds during the airless spraying procedure. Static charges can lead to fire and explosions.
-  Therefore, the complete unit (including the spray gun) and the object to be sprayed must be grounded properly.
-  **Never** point the spray gun towards yourself, other people or other living creatures!
- **Never** hold your finger or hand in front of the gun and **never** reach into the spray.
- Hold the spray gun securely, as the high operating pressure can result in severe kickback.
- **Never** try to seal leaks on joints and high pressure hoses with your hand or by binding the spot. Should a leak occur, the whole system (gun, hose, pressure filter, pump, etc.) are to be depressurized **immediately**. Defective parts are to be replaced.
- The spray gun is to be secured and the safety device checked during **every** interruption while working, regardless how short.
-  If working with heated materials, always wear the proper hand protection. **BURN DANGER!**
- Upon work interruption and decommissioning of the spraying unit the entire system has to be depressurized. Read and follow the instructions in the operation manual for the spray equipment. Trigger the spray gun briefly at the end of work to release any residual pressure.
- The entire system is to be depressurized before maintenance and cleaning work is carried out. Read and follow the user's handbook for the

spray equipment.

- Remove the spray gun from the spraying equipment before carrying out this work.
- **Never** spray solvents or materials containing solvents into a narrow-necked can or barrel with bung hole.
DANGER OF EXPLOSION!
-  Always use an open container. Due to possible electrostatic charges, it is imperative to ensure that the spray gun is grounded to the container walls when working with metal containers.
- Never dip a hot spray gun into solvent.
DANGER OF EXPLOSION!
- Never use this equipment outdoors during a thunderstorm.
- In closed or pressurised systems where aluminium or galvanised parts come into contact with the solvent, dangerous chemical reactions can occur if 1.1.1-trichlorethylene, methylene chloride or other solvents containing halogenated chlorinated hydrocarbons (CFCs) are used. These materials combine with water to produce acids which corrode the surfaces of the spray gun and other parts. Never expose the spray gun to acids or paint remover. Repeatedly recovered solvents can also become acidic through increasing water content. If you wish to work with the above solvents, or with lacquers and paints which contain them, we recommend you contact either the customer service of your **WIWA®** distributor or **WIWA®** directly.
- A list of materials used in the construction of the spray gun can be provided upon request in order to determine the compatibility with the materials to be sprayed.
- Smoking, open flames or any other possible ignition sources are not allowed anywhere near the area of operation

2.7 Operating staff

The device may only commissioned, operated and repaired by qualified and trained personnel.

Authorised Operators

People under the age of 16 should not operate this equipment.

operators	qualification
adjusting work	trained operator
servicing work	trained operator
cleaning work	trained operator
maintenance work	personnel trained by WIWA® customer service

The management in charge of the operation of the spray gun must make the user's handbook available to the operator and must make sure that he has read and understood it. Only then may the system be put into operation. **We recommend that the manager has this confirmed in writing.**

The operator must make sure that only authorised persons work on the equipment.

Personal protective equipment

Please wear the prescribed protective clothing at all times, as solvent vapours and solvent splashes cannot be completely avoided.

We call to your attention that the valid guidelines and requirements in accordance with work surroundings (mining, closed areas etc.) must be absolutely adhered to.



Although spraying fog is kept to a minimum when the correct pressure setting and proper method of operation are observed, the operating painter should wear a protective breathing mask.



To avoid burns, use protective gloves when working with heated materials.



Never use solvent or other materials which present a health hazard for cleaning skin. Only suitable skin protective, skin cleansing and skin care.

2.8 Safety measures at installation site

- Ensure there is sufficient ventilation at the workplace to prevent damage to health and property as well as to minimize the danger of fire and explosion. The spray gun may not be operated in closed areas lacking ventilation.
- Observe the manufacturer's processing instructions at all times.
- Protect all objects in the vicinity of the objects to be sprayed from damage by overspray.
- The owner / operator of this equipment is required to ensure that proper protection against lightning strikes is available.



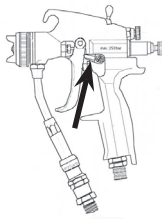
Comply strictly with the current rules for accident prevention.

2.9 Safety equipment



The safety devices on the spray gun are required by law and may in no case be removed!

Locking the spray gun



By placing the lever in the horizontal position (pict. 2.1), the spray gun is secured against accidental discharge. The spray gun must be locked at each work interruption, regardless how short.

Fig. 2.1

All protection devices must be checked:

- before each commissioning of the spray gun!
- before beginning work on/with the spray gun!
- after all aligning work!
- after cleaning and servicing!
- after maintenance and repair!



If a safety device is not fully functional, the spray gun may not be operated.

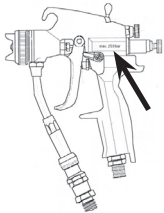
The spray gun may only be used again when the proper function has been restored.

3 Description of equipment

3.1 Intended use

This pneumatically operated paint spray gun with pump support in the high pressure range (up to max. 250 bar) is suitable for processing liquid, sprayable media with consideration of the manufacturer references.


The high pressure spray gun is led by hand and operated by the operator to coat the work piece.



A marking with the allowable working pressure range can be found on each spray gun (pict. 3.1)

Fig. 3.1

Use of the units in explosion hazardous areas

Marking:  II 2G x

The unit fulfils the explosion protection requirements of the Directive 94/9/EC for explosion group, unit category and temperature class specified on the type plate.

The unit is suitable for being installed in explosion-protection zone I. The unit of group II must be assigned to unit category 2G due to the possible generation of explosion producing atmospheres resulting from gasses and paint mist. The ignition temperature of the materials and solvents to be used must lie

above 200 °C.

When operating the unit, the specifications in this operating manual must be observed in all cases.

The specified inspection and maintenance intervals must be observed.

The details on the unit plates or the details in the chapter Technical Data must be observed under all circumstances and should not be exceeded. An overloading of the unit must be excluded.

The operator is responsible for determining the zone allocation according to the Directive of EC 94/9/EC, Appendix II, no. 2.1-2.3 when observing the measures of the responsible inspecting authority. The operator is responsible for checking and ensuring that all technical data and markings according to ATEX correspond with the necessary requirements.

Make sure that several components have their own type plate with separate marking according to ATEX.

The respective lowest explosion protection of the marking attached applies for the entire unit. Applications where the malfunction of the unit can lead to danger to personnel must be provided with respective safety measures by the operator.

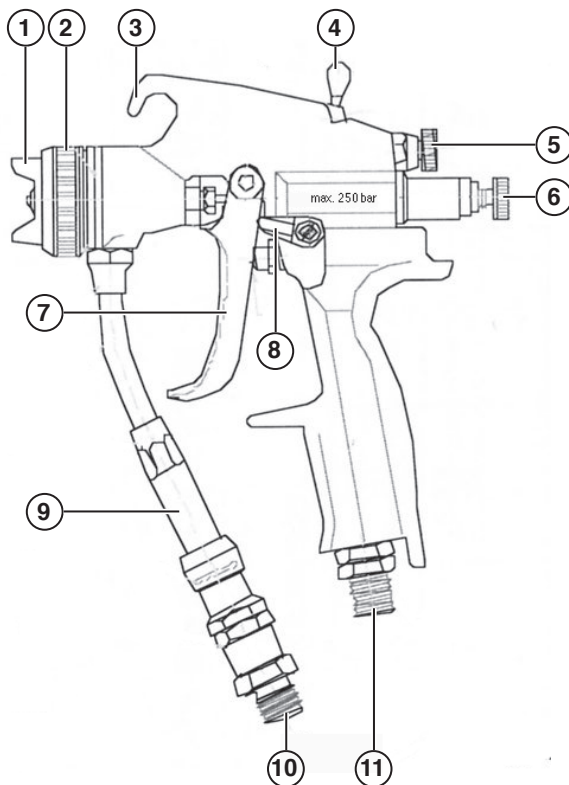
In case problems can be noticed during operation, the unit must be stopped immediately and contact should be established with WIWA.

You must make sure that the unit is earthed separately or together with the unit that it is mounted on (max. resistance $10^6 \Omega$).

Any other use is deemed not in accordance with regulations. The manufacturer's approval must be obtained before the spray gun is used for any other purpose or with other materials, i.e. not in accordance with the intended use, otherwise the warranty will become null and void.

Intended use also includes compliance with the technical documentation and adherence to the prescribed operating, servicing and maintenance guidelines.

3.2 Assembly details



Pos.	Description
1	air cap with tip
2	union nut
3	hook
4	flat jet regulation
5	round jet regulation
6	spring adjustment

Pos.	Description
7	trigger
8	trigger lock bolt
9	paint tube with filter insert
10	fluid connection $\frac{1}{4}$ "
11	air connection $\frac{1}{4}$ "

3.3 Technical data

3.3.1 Connected loads

Maximum permitted air pressure	8 bar
Recommended operating pressure Operating pressure depends on viscosity, nozzle size and kind of spray system (Airless - Air Combi)	1,5 - 3 bar
Maximum permitted material temperature by operation without gloves	40 °C
Maximum permitted material temperature by operation with gloves	60 °C
Maximum permitted material pressure	250 bar

For short positive pressures of 10 - 12 bar (143 – 170 psi) at the air supply and higher pump pressures (above 250 bar – 3.556 psi material pressure) there is no danger of damage to the high pressure spray gun.

Positive pressure in the material area are compensated by automatic release of the paint needle.

Caution! This releases spraying material!

3.3.2 Material consumption and output values

Material consumption values: vary depending on nozzle bore and pump pressure

Material output values: Measurement based on the following values:

Operating pressure	100 bar
Nozzle size	0,23 mm
Material viscosity	45 sec. DIN 4 mm/20 °C
Material output	approx. 0,26 l/min

3.3.3 Air consumption

Air consumption of the high pressure paint spray gun (total air regulating valve adjusted fully on max.)

	Round jet	
1 bar	5 m ³ /h	84 l/min
2 bar	8,1 m ³ /h	136 l/min
3 bar	11,1 m ³ /h	185 l/min

	Flat jet	
1 bar	4,3 m ³ /h	72 l/min
2 bar	6,9 m ³ /h	115 l/min
3 bar	9,2 m ³ /h	154 l/min

These values can be reduced by operating the total air adjustment by approx. 80% (i.e. values are than only approx. 20 %)

3.3.4 Workstation related sound pressure level

Measured values:

	Round jet	Flat jet
1,0 bar	67 dB/A	69 dB/A
1,5 bar	71 dB/A	74 dB/A
2,5 bar	78 dB/A	79 dB/A

The measurements and datas are based on the following rules of the measuring technique:

Regulation for equipment safety law DIN 45635 Part 1/04.84

4 Setting-up



Read and follow additionally the instructions in the user's handbook for the spray equipment!

Flush the material passages incl. tip with solvent/cleaning fluid prior to the initial operation.



Fig. 4.1

- Secure the spray gun with the trigger lock (Fig. 4.1) for setting-up.
- Observe and follow the operation manual of the spraying equipment.

Installation of the spray tip

The proper tip size for your requirements can be found in the attached spare parts list.



The correct tip size depends on the spray application, the spray material and the characteristics of the work piece.

1. Place the trigger lock (see assembly details, Pos. 8) in the horizontal position to prevent the accidental discharge of material.



Before each tip replacement, the air supply must be interrupted and the spray gun pressure released!

2. Unscrew the swivel nut.
3. Remove the air cap.

4. Place the spray tip into the air cap so that the groove in the tip matches the pin in the air cap (fig. 4.2). This prevents the tip from rotating in the cap.
5. Place the air cap with tip into the spray gun.
6. Screw the swivel nut onto the spray gun.

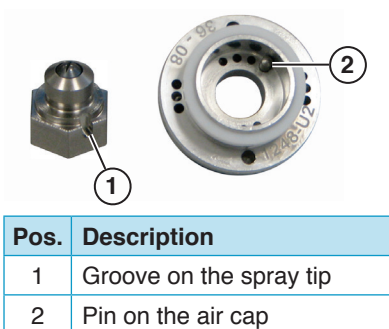


Fig. 4.2

Installation of the filter

1. Select a filter from the table in the attached spare parts list. The mesh spacing should not be larger than the tip orifice!
2. Use an open-end wrench to loosen the fluid tube lower.
3. Remove the previously installed filter, if any.
4. Place the new filter in the fluid tube upper.
5. Screw the paint tube lower piece onto the paint tube upper piece. Take care that the gasket is correctly positioned!

Connecting the air and fluid hoses

Install the required tip, before the air and material hoses for the spray unit are attached to the spray gun.

- Screw the material hose onto the connecting threads of the spray gun (s. Assembly Details, Pos. 10).
Use only authorized high pressure hoses!
Ensure there is proper seating of the ball/cone seal !
- Screw the air hose onto the connecting threads of the spray gun. (s. Spray gun assembly, Pos. 11)



Clean and dry air increases the quality of the spray pattern and extends the life of the spray gun!

5 Operation

1. Unlock the spray gun.
2. Pressing the lever to the first resistance point activates the atomizing air.
3. Press the lever completely to release the high pressure fluid stream.



Take care to maintain contact with the container wall when spraying into metallic containers in order to avoid build-up of a static charge.

The material flow and spray pattern are dependent upon the tip size, the material viscosity and the spraying pressure.

Notes about operating pressure

- The optimal operating pressure has been reached when there is an even material coating with feathered edges. Operate the unit with only that pressure which is required to give good atomization at the recommended 30-40 cm (12-16") spraying distance (Fig. 5.1).

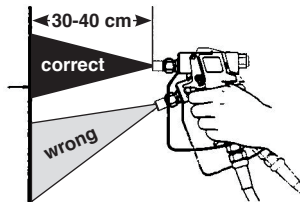


Fig. 5.1

- Excessive spray pressure will increase material consumption and create spray fog.
- Insufficient spray pressure will cause striping and inconsistent coating thickness.

Tips for Spraying - Painting

- ▶ Hold the spray gun perpendicular (90°) to the surface be coated. When the gun is held at a different angle, the coating will be spotty and the thickness will vary (Fig. 5.1).
- ▶ Move your arm smoothly. Take care to maintain a consistent speed distance from the work surface. Move the gun with your arm, not with your wrist. Waving of the gun will cause uneven coating (Fig. 5.2).

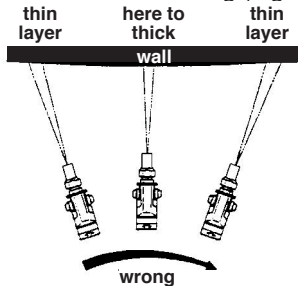


Fig. 5.2

- ▶ The gun should be moving before the trigger is depressed. This will produce a soft and smooth overlapping of the spray und prevent excessive coating thickness at the start of spraying. Release the trigger before the gun stops moving.
- ▶ Leave the air control valve open for 1-2 sec after spraying is ended, in order to prevent drop formation/material build-up at the tip: Release the trigger enough to stop material flow, but allow atomizing air to continue.
- ▶ Take care that spraying is in the same direction as the spray booth ventilation (max. +/- 90°). Never spray in the direction opposite to the ventilation!

Adjusting the flat stream

With flat stream control (s. assembly details, Pos. 4) the mixing of the atomizing air can be adjusted.

clockwise	less air - minimal atomization
counter clockwise	more air - maximal atomization

Adjusting the round stream

Through the mixing of additional air (round stream regulation, s. assembly details, Pos. 5), the flat stream can be reshaped to a round stream.

clockwise	less air - flat stream
counter clockwise	more air - round stream

Regulating the spring pressure

The trigger spring is adjustable (s. assembly details, Pos. 6)

➤ Adjust the spring pressure/preload according to the fluid pressure.

turn screw clockwise	high spring preload (250 bar, 3626 psi)
turn screw counter clockwise	low spring preload (80 bar, 1160 psi)



For pressures between 80 and 250 bar (1160-3626 psi), select an appropriate position in between.

Adjusting the direction of the Flat Stream

The position of the air cap und the spray tip determine the direction of the spray pattern.

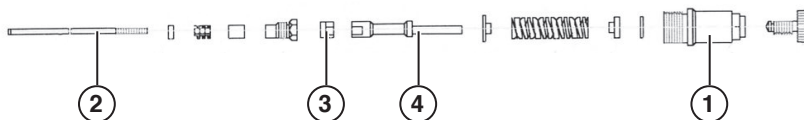
1. Interrupt the air supply to the entire spray unit.
2. Trigger the spray gun to release the pressure.
3. Lock the spray gun (safety lever horizontal).

4. Loosen the swivel nut per hand.
5. Turn the air cap to the desired position.
6. Tighten the swivel nut securely.

Flat stream direction adjustment	
Turn the air cap depending on the desired direction (the spray tip rotates with it)	Spray pattern
Air cap horizontal	
Air cap vertical	

Adjusting the atomizing air

The atomizing air flows from the air cap as soon as pressure is applied to the trigger. Because it is started before the material flow, the material is atomized consistently from the first drop. And because releasing the trigger stops the material flow first, the atomizing air will carry the last drop of material into the spray stream.



Pos.	Description
1	Locking tappet
2	Needle

Pos.	Description
3	Needle carrier
4	Needle back part

Fig. 5.3

1. Interrupt the air supply to the entire unit.
2. Trigger the spray gun to release pressure.
3. Lock the spray gun (safety lever horizontal).

4. Screw out the locking tappet (pict. 5.6, pos. 1) and remove the needle (pict. 5.6, pos. 2).
5. Using a 6 mm open-end wrench, loosen the needle carrier (pict. 5.1.5, pos. 2) while holding the needle back piece (Bild 5.1.5, Pos. 3).
6. Adjust the needle.

turn needle clockwise	less atomizing air
turn needle counter clockwise	more atomizing air

7. Secure the needle by tightening the needle carrier while holding the needle back piece.
8. Install the needle in the gun body and tighten the locking tappet securely.

Work interruptions

- Lock the lever (Fig 5.1) at each work interruption, regardless how short.
- Flush the spray gun thoroughly with the appropriate solvent immediately after work is complete and at longer work interruptions. Flushing is complete when clean solvent comes out of the gun.
Take care to use only acid-free solvent!

6 Disturbances during operation and trouble-shooting

faults	probable causes	remedies
Decrease in paint flow when spraying	<ul style="list-style-type: none"> ▶ Filter of gun clogged ▶ Viscosity too high ▶ Nozzle to wide or worn out ▶ Too low material pressure 	<ul style="list-style-type: none"> ▶ Clean the filter ▶ Water down the paint ▶ Insert new nozzle ▶ Increase air inlet pressure of the pump
Irregular spray pattern	<ul style="list-style-type: none"> ▶ Airless nozzle clogged ▶ Filter of gun clogged ▶ Nozzle to wide or worn out ▶ Viscosity to high ▶ No, or not enough atomizer air ▶ Air passages contaminated ▶ Atomizing air pressure too high or too low 	<ul style="list-style-type: none"> ▶ Clean or replace nozzle ▶ Clean or change the filter ▶ Insert new nozzle ▶ Thin the paint ▶ Open regulation ▶ Clean with a brush. Do not use a wire brush! ▶ Adjust pressure regulation valve
Spray tip plugs continuously	<ul style="list-style-type: none"> ▶ Spray material too coarsely pigmented ▶ Filter mesh too coarse 	<ul style="list-style-type: none"> ▶ Use spray material with Airless quality ▶ Use a finer filter

faults	probable causes	remedies
Spray gun still sprays when closing	➤ Seal washer or needle ball worn out	➤ Change parts
	➤ Needle spring has lost stress	➤ Replace spring
	➤ Needle seal too strong thus needle can not be moved through the spring.	
	➤ Needle and needle sealing dirty	➤ Change sealings
Spray gun leaks paint on needle seal	➤ Needle seal worn	➤ Replace sealings
	➤ Packing gland is not installed tight enough	➤ Tighten packing gland
Spray gun is blowing	➤ Valve spring fatigue	➤ Replace spring
	➤ Valve sealing worn	➤ Change valve sealing
	➤ Valve defective	➤ Change valve
Spray gun has no or to little pre-air	➤ Pre-air stroke screw not properly adjusted	➤ Adjust pre-air

7 Maintenance and repair

- Set-up work for production changes, as well as cleaning and maintenance work, may only be performed by trained operators.
- Maintenance and repair work may only be performed by trained service personnel.
- Prior to beginning this work, the spray equipment must be shut down and pressure released. Read and follow the instructions in the user's manual for the spray equipment.
- Trigger the spray gun briefly to release pressure prior to disconnecting it from the spray unit. Proceed carefully! Residual pressure may be present!
- After completion of maintenance work, the function of all safety devices and spray gun must be checked.



Regularly cleansing and servicing prolongs the life-span of the high pressure spray gun. For a general cleansing we offer a professional service in our company.

7.1 Lubrication

- O-ring, needle guidance, needle seal, as well as lever bearing need to be lubricated regularly with silicone-free oil and/or silicone-free grease.

7.2 Cleaning

- Flush vigorously immediately after use or longer work interruptions with solvent corresponding to the spraying material.
Flushing is complete when clean solvent comes out of the gun.
- Never place the spray gun in a solvent bath.

Cleaning the spray tip

1. Close the air supply valve on the spray unit.
2. Perform a complete pressure release on the spray unit.
3. Completely depress the lever of the spray gun to pressure release it.
4. Lock the spray gun.
5. Unscrew the swivel nut.
6. Remove the air cap and spray air from front to back through the spray tip.
7. Reinstall the air cap and turn it to the desired position.
8. Screw the swivel nut on securely.



Replace the spray tip before it is worn out. Worn tips increase material consumption and reduce the quality of the finish.

Cleaning the filter

Clean the filter regularly, depending on the paint used, and at each material change. This will prevent material deposits which make disassembly impossible.

1. Perform a pressure release on the spray unit.
2. Completely depress the lever of the spray to pressure release it.
3. Lock the spray gun.
4. Using a 17mm open-end wrench, loosen the fluid tube lower while using a 13mm open-end wrench to hold the fluid tube upper.
5. Twist the filter down out of the fluid tube upper.
6. Clean the filter with a (non-wire) brush.
7. Remount the filter in the opposite order.



Take care that the gasket in the fluid tube upper is correctly seated.

7.3 Exchanging parts



Shut down the spray equipment and perform a pressure release.

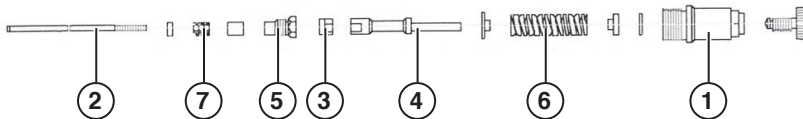
- Reduce pump pressure completely and trigger the spray gun to release pressure.

Read and follow the instructions in the user's handbook for the spray equipment.

Spritzpistole von der Pumpe trennen!

Replacing the Needle

1. Loosen the gland.
2. Unscrew the locking tappet.
3. Remove the needle and the pressure disc on the needle back piece from the rear of the gun.
4. Install a new needle with the existing spring and pressure disc.



Pos.	Description
1	Locking tappet
2	Needle
3	Needle carrier
4	Needle back piece

Pos.	Description
5	Gland
6	Spring
7	Cap collar

Fig. 7.1

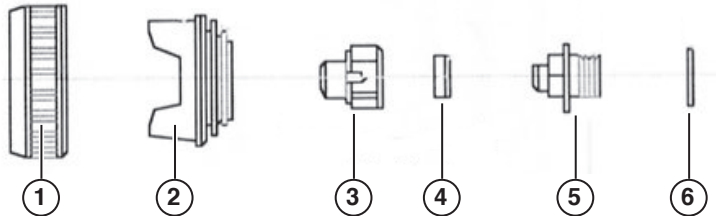
Replacing the Needle seal (Cap collar)

1. Remove the needle as described in "Replacing the Needle".
2. Remove the trigger by loosening the trigger screw and removing the trigger axle along with the flat head screw.
3. Unscrew the retaining cap.
4. Pull the complete connecting piece from the front of the gun.
Between the connecting piece and gun body are an O-ring and two gaskets!
5. Remove the gland.
6. Replace the spacer bush and cap collar with O-rings.
7. Reinstall all parts in the reverse order.
Do not overtighten the gland!

Replacing the valve gland seal

1. Remove the trigger as described in "Replacing the needle seal (Cap collar)".
2. Unscrew the valve gland.
3. Remove the valve gland seal from the front of the gun.
If the valve remains in the gun body, loosen the screw plug with a screwdriver.
4. Use a pin punch on the back of the valve to press it out of the gun body.
5. Reinstall all parts in the reverse order.
Take care to install the pin in the correct direction:
 - the spherical end is toward the front of the gun,
 - the squared end is inserted into the gun.
6. Install a new, well oiled valve gland seal.
7. Secure the screw plug with a soft setting thread sealant (ex: Loctite red).

Replacing the spray tip



Pos.	Description
1	Swivel nut
2	Atomizer head with seal
3	Tip

Pos.	Description
4	Gasket
5	Gasket holding screw
6	Seal ring

Fig. 7.2

1. Adjust the air pressure regulator to 0 bar and completely depress the trigger on the spray gun to pressure release it.
2. Lock the spray gun by placing the trigger lock in the horizontal position.
3. Unscrew the swivel nut (Fig. 7.2, pos. 1) .
4. Remove the air cap (Fig. 7.2, pos. 2).
5. Press the spray tip (Fig. 7.2, pos. 3) out of the air cap.
6. Clean the tip by placing it in the appropriate solvent for the material (or use a new tip) and reinstall it in the air cap.
7. Reassemble the gun in reverse order.
Take care to install the tip into the air cap so that the pin in the air cap sits in the groove in the tip. This prevents the tip from rotating in the air cap.

Replacing the gasket (Gasket holding screw)

1. Adjust the air pressure regulator to 0 bar and completely depress the lever on the spray gun to pressure release it.
2. Lock the spray gun by placing the trigger lock in the horizontal position.
3. Unscrew the swivel nut (Fig. 7.2, pos. 1) .
4. Remove the air cap (pict. 7.2, pos. 2).
5. Loosen the gland (pict. 7.1, pos. 5).
6. Unscrew the locking tappet (pict. 7.1, pos. 1) and remove the complete needle with spring and pressure disc.
7. Pull the locking tappet out to the rear.
8. Unscrew the gasket holding screw (pict. 7.2, pos. 5) with a deep 10mm socket.
9. Replace the seal ring on the seal holding screw (pict. 7.2, pos. 5 + 6) and inspect the needle for damage (pict. 7.1, pos. 2). Replace the needle as necessary.
10. Reassemble in the reverse order.

8 Disassembly

Trigger the spray gun briefly to release pressure prior to disconnecting it from the spray unit. Proceed carefully! Residual pressure may be present!

9 Disposal

The high pressure spray gun is not subject to special disposal regulations.

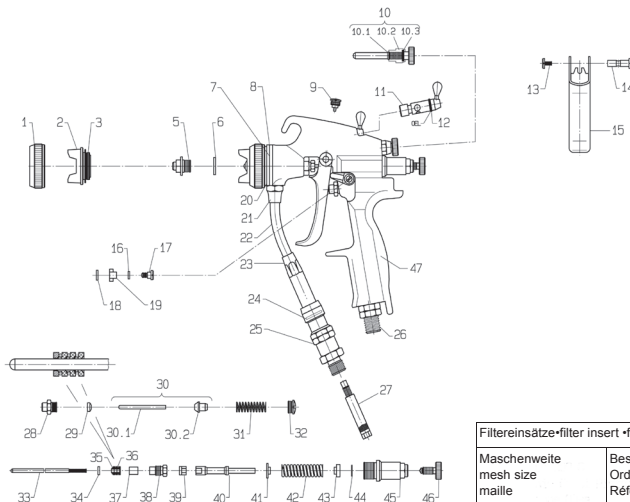
For disposal of auxiliary materials please observe:

- Take care of the safety and mixing instructions of the manufacturer for paint, solvents, oils, greases and other chemical substances, as well as the valid regulations.
- Residual paint, solvents, oils, greases and other chemical substances must be collected and recycling or disposed of in accordance with legal requirements.
- Local regulations for water protection are applicable.

10 Spare parts lists

10.1 Air Combi Spray Gun (without tip)

Article-No. 0653096



Filtereinsätze-filter insert -filtre seuls:Pos.27	
Maschenweite mesh size maille	Best.-Nr. Order-No. Référence
M 50 (green)	0646607
M 80 (white)	0632866
M 150 (yellow) standard	0632867
M 295 (red)	0632868

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Pos.-Nr. in Klammern () sind keine Bestandteile dieser Baugruppe / items marked with () are not part of assembly shown / Les pièces entre parenthèses ne font pas partie du sous-groupe

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Pos. Pos. Code	Bestell-Nr. Order-No. Référence	Stück Pieces Pièce	$V^1 / D^2 / R^3$	Artikelbezeichnung	Part Description	Désignation des articles
1.	0653139	1		Überwurfmutter	swivel nut	écrou-raccord
2.	0647227	1		Zerstäuberkopf	air cap	tête de diffusion
3.	0639746	1	D,R	Dichtung	gasket	joint
4.				ohne Düse	without tip	sans buse
4.1				ohne Dichtung	without gasket	sans joint
5.	0653156	1	R	Dichtungshalteschraube	seal fixing screw	vis d'arrêt de joint

Pos. Pos. Code (Forts.)	Bestell-Nr. Order-No. Référence	Stück Pieces Pièce	V ¹ / D ² / R ³	Artikelbezeichnung	Part Description	Désignation des articles
6.	0632855	1	D,R	Dichtring	gasket	joint
7.	0638116	1	D,R	O-Ring	o-ring	joint
8.	0653137	2	D,R	Dichtung	gasket	joint
9.	0653146	1	R	Verschlußschraube	screw plug	vis de fermeture
10.	0632972	1		Regulierschraube kpl. inkl.Pos.10.1-10.3	adjusting screw cpl. incl.pos.10.1-10.3	vis de réglage cpl. incl.pos.10.1-10.3
10.1	0632852	1		Runddrahtsprengring	round-wire spring ring	anneau à détacher de fil de section circulaire
10.2	0632971	1		Reguliereinsatz	adjusting insert	cattouche de réglage
10.3	0470392	1		O-Ring	o-ring	joint torique
11.	0653157	1	R	Luftregulierung	air regulator	régulation d'air
12.	0643103	1	D,R	O-Ring	o-ring	joint torique
13.	0653153	1	R	Flachkopfschraube	pan head	vis à tête conique
14.	0653147	1	R	Hebelachse	ever axle	axe de levier
15.	0653159	1		Abzughebel	trigger	sous-garde
16.	0632833	1	D,R	O-Ring	o-ring	joint torique
17.	0632831	1		Schraube	screw	vis
18.	0632832	1		Scheibe	disc	disque
19.	0632974	1		Hebelsicherungsriegel	trigger lock	verrou de fermeture à levier
20.	0653138	1		Anschlußstück	connecting piece	pièce de jonction
21.	0653148	1		Kontermutter	nut	contre-écrou
22.	0653149	1		Farbrohr-Oberteil	paint pipe upper part	tube de peinture partie supérieure
23.	0653150	1		Farbrohr-Unterteil	paint pipe bottom	tube de peinture partie inférieure
24.	0653133	1	D,R	O-Ring	o-ring	joint torique
25.	0653158	1		Materialanschluß	fluid connector	connexion de fluide
26.	0632849	1		Luftanschluß,drehbar	air connection,turnable	connection d'air,tournante
27.		1		Filter(siehe Tabelle)	filter(see table)	filtre(voir tableau)
28.	0653152	1	R	Ventilstopfbuchse	valve gland	presse-étoupe de soupape
29.	0632850	1	D,R	Ventilstopfbuchsendichtung	valve gland gasket	joint de presse-étoupe de soupape
30.	0653135	1		Ventilstift kpl.,bestehend aus Pos.30.1+30.2	valve pin cpl.,consisting of pos.30.1+30.2	broche cpl.,consistant en pos.30.1+30.2
30.1	0653134	1	R	Ventilstift	valve pin	broche
30.2	0632839	1	D,R	Ventil	valve	soupape
31.	0632843	1	R	Druckfeder	spring	ressort
32.	0632845	1	1	Verschlußschraube	screw plug	vis de fermeture
33.	0653155	1	R	Nadelstück	needle piece	pièce d'aiguille
34.	0653140	1		Dichtscheibe	gasket disc	rondelle d'étanchéité
35.	0632833	3		O-Ring	o-ring	joint torique
36.	0653141	3	D,R	Hutmanschette	cap seal	manchette chapeau
37.	0653142	1		Distanzbuchse	spacer bush	douille de distance
38.	0653143	1		Stopfbuchse	gland	presse-étoupe
39.	0653144	1		Nadelmitnehmer	needle carrier	toc d'entraînement d'aiguille
40.	0653145	1		Nadelhinterteil	needle back part	partie postérieur d'aiguille

Pos. Pos. Code (Forts.)	Bestell-Nr. Order-No. Référence	Stück Pieces Pièce	V ¹ / D ² / R ³	Artikelbezeichnung	Part Description	Désignation des articles
41.	0632862	1		Druckscheibe,groß	pressure disc,large	disque de pression,grand
42.	0653151	1		Druckfeder	spring	ressort
43.	0632861	1		Druckscheibe,klein	pressure disc,small	disque de pression,petit
44.	0632858	1		Zackenring	jagged ring	rondelle élastique
45.	0632853	1		Verschlußstück	locking tappet	pièce de fermeture
46.	0632859	1		Regulierschraube	adjusting screw	vis de réglage
47.	0657784	1		Pistolenkörper	gun body	corps de pistolet
	0653178		R	Dichtungssatz	seal kit	jeu de joints
	0653179			Reparatursatz	repair kit	kit de réparation
	0653187			Zubehör-u.Werkzeugsatz	tool and accessory kit	jeu de accessoires et outils

¹V= Verschleißteile • Wear parts • Pièces d'usure usuelles

²D= Teile des Dichtungssatzes • Parts of seal kit • Pièces de kit de joints

³R= Teile des Reparatursatzes • Parts of repair kit • Pièces de kit de reparation

⁴R_G = Teile des Reparatursatzes, groß • Parts of repair kit, big • Pièces de kit de reparation grand

⁵R_K = Teile des Reparatursatzes, klein • Parts of repair kit, small • Pièces de kit de reparation, petit

Sicherungsmittel / Thread sealant / produit d'étanchéité

Symbol / Symbol / Symbole	Beschreibung / Description / Description	Artikel / Bestell-Nr. Article / Order-No. L'article / Référence
[r]	schwach / light / léger (50 ml)	222 / 0000016
[b]	mittel / medium / medium (50 ml)	243 / 0000015
[schw]	mittel, Kunststoff-Stahl / medium, plastic-steel / medium, plastique-acier (20 ml)	480 / 0000107
[g]	hochfest / high-streng / hautesistance (50 ml) hochfest für CrNi-Teile / for CrNi steel parts / pour parties fabriquées de CrNi (50 ml)	601 / 0000014 2701 / 0000303
[P]	Rohrdichtungspaste / pipe sealant / pâte d'étanchéité pour tuyaux (50 ml)	225 / 0000017
[a]	Aktivator / activator / activateur (500 ml) Aktivator für Kunststoffteile / activator for plastic parts / activateur pour pièces de plasti- que (10 ml)	734 / 0000018 770 / 0000108
[L]	Gewindeband / threaded tape / ruban de filetage	/ 0000099
[k]	2K - Kleber / 2K - adhesive / 2K - adhésif	/ 0000414

Betriebsmittel / Machinery materials / Équipement de production

Symbol / Symbol / Symbole	Beschreibung / Description / Description	Bestell-Nr. Order-No. Référence
[F]	Fett, säurefrei / acid-free / sans acide	0000025
[T]	Trennmittel / release agent / agent séparateur bei Verarbeitung von Isozyanaten / for application with isocyanate / pour l'application de l'isocyanate	0163333 0640651
[M]	Montagepaste (für R- und RS-Ausführung) / as- sembly paste (for version R or RS) / pâte d'as- semblage (de version R et RS)	0000233
[MS]	Montagespray (für R- und RS-Ausführung) / as- sembly spray (for version R or RS) / aérosol d'as- semblage (de version R et RS)	0000118

10.2 Air Combi Spray Gun (with tip)

Article-No. 0653095

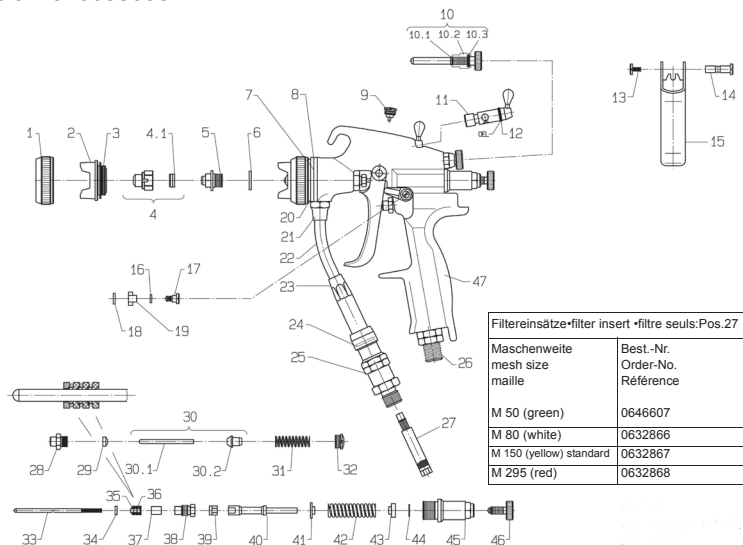


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Pos. Pos. Code	Bestell-Nr. Order-No. Référence	Stück Places Pièce	V ¹ / D ² / R ³	Artikelbezeichnung	Part Description	Désignation des articles
1.	0653139	1		Überwurfmutter	swivel nut	écrou-raccord
2.	0647227	1		Zerstäuberkopf	air cap	tête de diffusion
3.	0639746	1	D,R	Dichtung	seal	joint
4.		1		Düse (siehe Tabelle)	tip (see table)	buse (voir tableau)
4.1	0653136	1	D,R	Dichtung	seal	joint
5.	0653156	1	R	Dichtungshalteschraube	seal fixing screw	vis d'arrêt de joint
6.	0632855	1	D,R	Dichtring	seal ring	joint

Düsentabelle / Tip chart

Spritzwinkel Spray Angle Grad / Degrees	Spritzbreite Spray Width in mm	Einbaudüse Insert tip Air Combi	Bestell-Nr. Order ref. Référence
10°	100-125	123	0653098
20°	100-125	218	0653099
30°	150-175	318	0653104
40°	200-225	418	0653110
20°	100-125	223	0653100
30°	150-175	323	0653105
40°	200-225	423	0653080
50°	250-275	523	0653117
60°	300-325	623	0653121
20°	100-125	228	0653101
30°	150-175	328	0653106
40°	200-250	428	0653111 (Standard)
50°	200-275	528	0653118
60°	300-325	628	0653122
20°	100-125	233	0653102
30°	150-175	333	0647228
40°	200-225	433	0653112
50°	250-275	533	0653119
60°	300-325	633	0653123
20°	100-150	238	0653103
30°	150-200	338	0653107
40°	200-250	438	0653113
50°	250-300	538	0653120
60°	300-350	638	0653124
30°	150-175	343	0653108
40°	200-250	443	0653114
40°	200-250	446	0653115
60°	300-350	646	0653125
40°	200-250	453	0653116
60°	300-350	653	0653126
30°	150-175	358	0653109

Pos. Pos. Code (Forts.)	Bestell-Nr. Order-No. Référence	Stück Pieces Pièce	V ¹ / D ² / R ³	Artikelbezeichnung	Part Description	Désignation des articles
7.	0638116	1	D,R	O-Ring	o-ring	joint
8.	0653137	2	D,R	Dichtung	seal	joint
9.	0653146	1	R	Verschlußschraube	screw plug	vis de fermeture
10.	0632972	1		Regulierschraube kpl. inkl.Pos.10.1-10.3	adjusting screw cpl. incl.pos.10.1-10.3	vis de réglage cpl. incl.pos.10.1-10.3
10.1	0632852	1		Runddrahtsprengring	round-wire spring ring	anneau à détacher de fil de section circulaire
10.2	0632971	1		Reguliereinsatz	adjusting insert	cattouche de réglage
10.3	0470392	1		O-Ring	o-ring	joint torique
11.	0653157	1	R	Luftregulierung	air regulator	régulation d'air
12.	0643103	1	D,R	O-Ring	o-ring	joint torique
13.	0653153	1	R	Flachkopfschraube	pan head	vis à tête conique
14.	0653147	1	R	Hebelachse	ever axle	axe de levier
15.	0653159	1		Abzughebel	trigger	sous-garde
16.	0632833	1	D,R	O-Ring	o-ring	joint torique
17.	0632831	1		Schraube	screw	vis
18.	0632832	1		Scheibe	disc	disque
19.	0632974	1		Hebelsicherungsriegel	trigger lock	verrou de fermeture à levier
20.	0653138	1		Anschlußstück	connecting piece	pièce de jonction
21.	0653148	1		Kontermutter	nut	contre-écrou
22.	0653149	1		Farbrohr-Oberteil	paint pipe upper part	tube de peinture partie supérieure
23.	0653150	1		Farbrohr-Unterteil	paint pipe bottom	tube de peinture partie inférieure
24.	0653133	1	D,R	O-Ring	o-ring	joint torique
25.	0653158	1		Materialanschluß	fluid connector	connexion de fluide
26.	0632849	1		Luftanschluß,drehbar	air connection,turnable	connection d'air,tournante
27.		1		Filter(siehe Tabelle)	filter(see table)	filtre(voir tableau)
28.	0653152	1	R	Ventilstopfbuchse	valve gland	presse-étoupe de soupape
29.	0632850	1	D,R	Ventilstopfbuchsendichtung	valve gland gasket	joint de presse-étoupe de soupape
30.	0653135	1		Ventilstift kpl.,bestehend aus Pos.30.1+30.2	valve pin cpl.,consisting of pos.30.1+30.2	broche cpl.,consistant en pos.30.1+30.2
30.1	0653134	1	R	Ventilstift	valve pin	broche
30.2	0632839	1	D,R	Ventil	valve	soupape
31.	0632843	1	R	Druckfeder	spring	ressort
32.	0632845	1	R	Verschlußschraube	screw plug	vis de fermeture
33.	0653155	1	R	Nadelstück	needle piece	pièce d'aiguille
34.	0653140	1		Dichtscheibe	gasket disc	rondelle d'étanchéité
35.	0632833	3		O-Ring	o-ring	joint torique
36.	0653141	3	D,R	Hutmanschette	cap seal	manchette chapeau
37.	0653142	1		Distanzbuchse	spacer bush	douille de distance
38.	0653143	1		Stopfbuchse	gland	presse-étoupe
39.	0653144	1		Nadelmitnehmer	needle carrier	toc d'entraînement d'aiguille
40.	0653145	1		Nadelhinterteil	needle back part	partie postérieur d'aiguille

Pos. Pos. Code (Forts.)	Bestell-Nr. Order-No. Référence	Stück Pieces Pièce	V ¹ / D ² / R ³	Artikelbezeichnung	Part Description	Désignation des articles
41.	0632862	1		Druckscheibe,groß	pressure disc,large	disque de pression,grand
42.	0653151	1		Druckfeder	spring	ressort
43.	0632861	1		Druckscheibe,klein	pressure disc,small	disque de pression,petit
44.	0632858	1		Zackenring	jagged ring	rondelle élastique
45.	0632853	1		Verschlußstück	locking tappet	pièce de fermeture
46.	0632859	1		Regulierschraube	adjusting screw	vis de réglage
47.	0657784	1		Pistolenkörper	gun body	corps de pistolet
	0653178		R	Dichtungssatz	seal kit	jeu de joints
	0653179			Reparatursatz	repair kit	kit de réparation
	0653187			Zubehör-u.Werkzeugsatz	tool and accessory kit	jeu de accessoires et outils

¹V= Verschleißteile • Wear parts • Pièces d'usure usuelles









²D= Teile des Dichtungssatzes • Parts of seal kit • Pièces de kit de joints

³R= Teile des Reparatursatzes • Parts of repair kit • Pièces de kit de réparation





⁴R_g = Teile des Reparatursatzes, groß • Parts of repair kit, big • Pièces de kit de réparation grand

⁵R_k = Teile des Reparatursatzes, klein • Parts of repair kit, small • Pièces de kit de réparation, petit

Sicherungsmittel / Thread sealant / produit d'étanchéité

Symbol / Symbole	Beschreibung / Description	Artikel / Bestell-Nr. Article / Order-No. L'article / Référence
	schwach / light / léger (50 ml)	222 / 0000016
	mittel / medium / medium (50 ml)	243 / 0000015
 schw	mittel, Kunststoff-Stahl / medium, plastic-steel / medium, plastique-acier (20 ml)	480 / 0000107
	hochfest / high-streng / hautesistance (50 ml) hochfest für CrNi-Teile / for CrNi steel parts / pour parties fabriquées de CrNi (50 ml)	601 / 0000014 2701 / 0000303
	Rohrdichtungspaste / pipe sealant / pâte d'étanchéité pour tuyaux (50 ml)	225 / 0000017
	Aktivator / activator / activateur (500 ml) Aktivator für Kunststoffteile / activator for plastic parts / activateur pour pièces de plasti- que (10 ml)	734 / 0000018 770 / 0000108
	Gewindeband / threaded tape / ruban de filetage	/ 0000099
	2K - Kleber / 2K - adhesive / 2K - adhésif	/ 0000414

Betriebsmittel / Machinery materials / Équipement de production

Symbol / Symbole	Beschreibung / Description	Bestell-Nr. Order-No. Référence
	Fett, säurefrei / acid-free / sans acide	0000025
	Trennmittel / release agent / agent séparateur bei Verarbeitung von Isozyanat / for application with isocyanate / pour l'application de l'isocyanate	0163333 9540651
	Montagepaste (für R- und RS-Ausführung) / as- sembly paste (for version R or RS) / pâte d'as- semblage (de version R et RS)	0000233
	Montagespray (für R- und RS-Ausführung) / as- sembly spray (for version R or RS) / aérosol d'as- semblage (de version R et RS)	0000118



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Your contacts throughout the world

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